

EXHIBIT C

BF16 multiply, BF16 denormals flushed to 0.

BF20 outputs.

Progress (of 64) 0----- 1----- 2----- 3----- 4----- 5----- 6---

Done.

Total number of inputs checked= 4294967296(100000000)

Valid inputs don't produce NaN, Overflow (Inf), or Underflow (i.e. 0 when exact is not 0).

Number of Valid Inputs to Multiply 3257804955(c22e289b)

| | | | |
|--------------------------------|-----------------------|----------------------|---------------------------|
| error range [50.00%,100.00%), | valid inputs in range | 0.00% (61751), | in or above range= 0.00% |
| error range [20.00%, 50.00%), | valid inputs in range | 0.25% (8079525), | in or above range= 0.25% |
| error range [10.00%, 20.00%), | valid inputs in range | 0.23% (7330888), | in or above range= 0.47% |
| error range [5.00%, 10.00%), | valid inputs in range | 0.25% (8041795), | in or above range= 0.72% |
| error range [2.00%, 5.00%), | valid inputs in range | 0.38% (12442818), | in or above range= 1.10% |
| error range [1.00%, 2.00%), | valid inputs in range | 4.01% (130706643), | in or above range= 5.12% |
| error range [0.50%, 1.00%), | valid inputs in range | 52.65% (1715138018), | in or above range=57.76% |
| error range [0.20%, 0.50%), | valid inputs in range | 36.00% (1172683535), | in or above range=93.76% |
| error range [0.10%, 0.20%), | valid inputs in range | 4.90% (159542118), | in or above range=98.66% |
| error range [0.05%, 0.10%), | valid inputs in range | 1.09% (35545092), | in or above range=99.75% |
| error range [0.02%, 0.05%), | valid inputs in range | 0.23% (7466019), | in or above range=99.98% |
| error range [0.01%, 0.02%), | valid inputs in range | 0.02% (623165), | in or above range=100.00% |
| error range [0.00%, 0.01%), | valid inputs in range | 0.00% (143588), | in or above range=100.00% |

Of all possible inputs (more than valid inputs)

NaN 0.78% (33488896 counts)

Inf 12.52% (537754624 counts)

Und 10.85% (465918821 counts)

Summary for spreadsheet. Inputs bf16z. Output bf20.

5.12%

57.76%

93.76%

98.66%

99.75%

0.78%

12.52%

10.85%

ignore: nan